99. FOODS AND BEVERAGES
426-66

No Drawing.

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PROVISIONAL SPECIFICATION.

An Improved Process for the Manufacture of Artificial Mineral Waters.

RECORDED

I, HERMANN HÜBENER, Doctor of Medicine, of Berlin S.W., 18—19 Alte Jacob Strasse, in the Empire of Germany, do hereby declare the nature of my invention for AN IMPROVED PROCESS FOR THE MANUFACTURE OF ARTIFICIAL MINERAL WATERS to be as follows:—

The object of the present invention is to produce artificial mineral waters which shall have all the advantages of the natural mineral waters at the same time obviating their disadvantages as also those of the artificial waters prepared up till now.

The natural mineral waters, of which a great quantity and variety are at present on the market, can hardly be considered harmless beverages. Seltzer water, for instance, one of the most popular beverages, certainly does not influence the digestive organs beneficially on account of the large amount of soda it contains. But on the other hand this water contains so much common salt that any desired degree of thirst may be produced by taking it. This beverage must be considered decidedly injurious for persons suffering from fever where the amount of gastric juice is already lessened and as proved by scientific examinations contains a relatively small quantity of hydrochloric acid.

Artificial mineral waters are imitations of the natural waters and besides having their own peculiar disadvantages, hereinafter described, possess all those of the latter. In addition to this as the method of manufacturing such waters is imperfect they may be undoubtedly characterised as inferior.

The superior kinds of artificial waters manufactured under the direction of men of science in this branch of the industry do not differ much from the natural waters in their chemical constituency, but rather in that the presence of atmospheric air therein prevents the thorough intermixture of the carbonic acid gas with the water.

During the whole course of the manufacture of artificial mineral waters, the carbonic acid gas has only been pumped into the water and then the superfluous quantity of mixed air and gas blown off. By this means it was generally believed that the air would be blown off with the gas. Supposing however that by continually repeating this process the air is blown out it still remains an uncertain and tedious process. Since by Dalton's law it may be assumed that the carbonic acid gas, on the water being impregnated therewith, will combine with the air present in the water, at the end of the blowing off process the gas remaining in the water will still be mixed with some air. For this reason an artificial water entirely equivalent to the natural water has not yet been produced.

By the process hereinafter described, I have succeeded in obviating these disadvantages and producing a beverage equal to any natural mineral water and having a better, more refreshing and more pleasant taste.

I preferably employ a mixture of phosphate of soda, sulphate of soda and carbonate of lime.

The lime is added to correct or improve the taste. The amount of soda liberated by the lime added causing the sulphate of soda to decompose, is so small that it need not be taken into account. The sulphate of lime formed is held in solution by the presence of the carbonic acid.

The phosphate and sulphate of soda exercise a thoroughly beneficial influence on the body, both having a sedative effect on the circulation, cooling and regulating the flow of the blood.

[*Price* 6*d*.]

In preparing this mineral water the solution employed and subsequently to be impregnated with carbonic acid, should be absolutely free from air otherwise the carbonic acid gas will combine with the air of the water, and instead of combining with the water will simply be mechanically pressed into the same, thus escaping as soon as the bottle is uncorked.

As distilled water regains considerable air in condensing, I preferably boil the solution of the salts mentioned, in a boiler, for some time, in order to drive out the air. Or I can also free the solution from air by employing a vacuum. The solution is then led off through an outlet near the bottom of the boiler into an air tight reservoir containing carbonic acid gas. The mixture is then led to the machine where it is impregnated with carbonic acid gas at a pressure of two and a half atmospheres, and bottled in the usual manner. Great care must be taken to prevent the access of even the least quantity of air, during the whole process.

Dated this 7th day of February 1891.

ALLISON BROS.,
Agents for the Applicant.

COMPLETE SPECIFICATION.

An Improved Process for the Manufacture of Artificial Mineral Waters.

I, HERMANN HÜBENER, Doctor of Medicine, of 18—19 Alte Jacob Strasse, Berlin, S.W., in the German Empire, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

The object of the present invention is to produce artificial mineral waters which shall have all the advantages of the natural mineral waters at the same time obviating the disadvantages of the same as also of those artificial waters prepared up till now.

The natural mineral waters of which a great quantity and variety are at present on the market, can hardly be considered harmless beverages. Seltzer water, for instance, one of the most popular beverages, certainly does not influence the digestive organs beneficially on account of the large amount of soda it contains, but on the other hand this water contains so much common salt that any desired degree of thirst may be produced by taking it. This beverage must be considered decidedly injurious for persons suffering from fever, where the amount of gastric juice is already lessened and as proved by scientific examination, contains a relatively small quantity of hydrochloric acid.

Artificial mineral waters are imitations of the natural waters and besides having their own peculiar disadvantages hereinafter described possess all those of the latter. In addition to this as the method of manufacturing such waters is imperfect they may be undoubtedly characterized as inferior.

The superior kinds of artificial waters, manufactured under the direction of men of science in this branch of the industry, do not differ much from the natural waters in their chemical constituency but rather in that the presence of atmospheric air therein prevents the thorough intermixture of the carbonic acid gas with the water.

During the whole course of the manufacture of artificial mineral waters, the carbonic acid gas has only been pumped into the water and then the superfluous quantity of mixed air and gas blown off. By this means it was generally believed that the air would be blown off with the gas. Supposing, however, that by continually repeating this process the air is blown out, it still remains a very uncertain and tedious method. Since by Dalton's law it may be assumed that the carbonic acid gas, on the water being impregnated therewith, will combine with the air present in the water, at the end of the blowing off process the gas remaining in the water

will still be mixed with some air. For this reason an artificial water entirely equivalent to the natural water has not yet been produced.

By the process hereinafter described I have succeeded in obviating these disadvantages and produced a beverage equal to any natural mineral water and having a better, more refreshing and pleasant taste.

I preferably employ a mixture of the following ingredients :

To 1000 grammes of water entirely freed from air

Phosphate of soda free from air - - -	0·73
Sulphate of soda „ „ „ - - -	1·29
Carbonate of lime - - - - -	0·15

and a suitable small quantity of citrate of soda according to taste.

The lime is added to correct or improve the taste. The amount of soda liberated by the lime added causing the sulphate of soda to decompose, is so small that it need not be taken into account. The sulphate of lime formed is held in solution by the presence of the carbonic acid.

The phosphate and sulphate of soda exercise a thoroughly beneficial influence on the body both having a sedative effect on the circulation cooling and regulating the flow of the blood.

In preparing the mineral water, the solution employed and to be impregnated with carbonic acid should be absolutely free from air otherwise the carbonic acid gas will combine with the air of the water and instead of combining with the water will simply be mechanically pressed in the same thus escaping as soon as the bottle is uncorked.

Since distilled water regains considerable air in condensing I preferably boil the solution of the salts mentioned above in a boiler for some time in order to drive out the air or I can draw out the air by evacuation. Boiling the solution, besides driving out the air has the very advantageous effect of thoroughly sterilising the same, as it is well known that bacteria and micro-organisms contained in the solution will be destroyed by the high temperature. The solution is then led off through an outlet near the bottom of the boiler, into an air tight reservoir containing carbonic acid gas. The mixture is then led to the machine where it is impregnated with carbonic acid gas at a pressure of $2\frac{1}{2}$ atmospheres and bottled in the usual manner, great care must be taken to prevent the access of even the least quantity of air, during the whole process.

Having now particularly described and ascertained the nature of my said invention and the manner in which the same is to be performed I declare that what I claim is :

1. The process of producing healthy and refreshing artificial mineral waters better capable of retaining their carbonic acid when not under pressure consisting in sterilising and expelling the air from a solution of phosphate of soda, sulphate of soda, citrate of soda and carbonate of lime advantageously in distilled water, by heating this said solution previous to charging the same with carbonic acid gas substantially as described.

2. The process for manufacturing my improved artificial mineral water substantially as herein before described.

Dated this 4th day of November 1891.

ALLISON BROS.,
Agents for the Applicant.

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